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AUG 1 8 2005
PATENT & TRADEMARK OFFICE

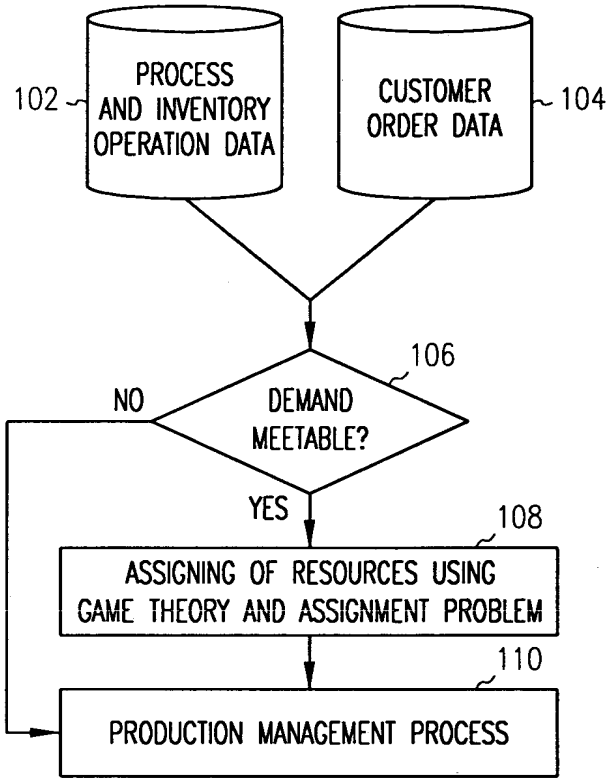

FIG. 1

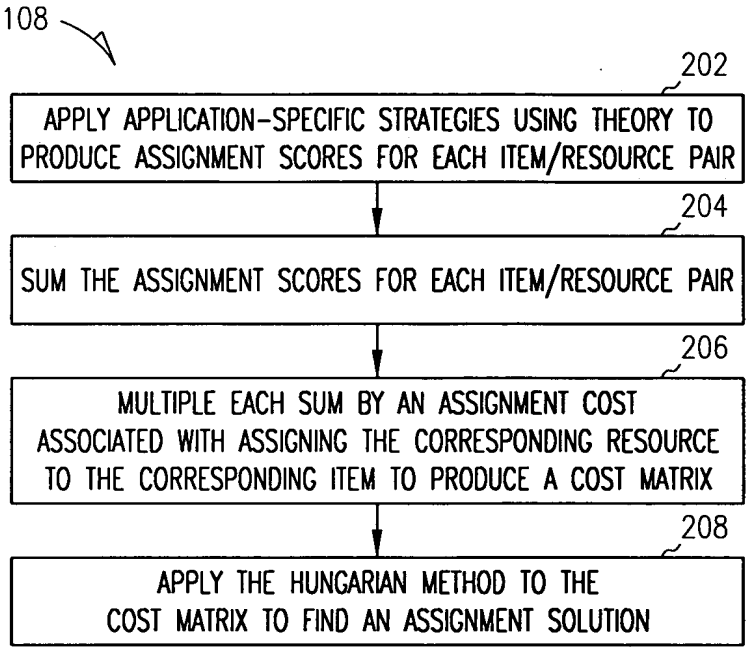

FIG. 2

300

	RESOURCE 1	RESOURCE 2	• • •	RESOURCE j	RESOURCE j
ITEM 1	C_{11}	C_{12}			
ITEM 2	C_{21}	C_{22}			
• • •					
ITEM i				C_{ij}	
ITEM n					C_{nk}

FIG. 3

400

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
STRATEGY 1	0.6	0.8	0.9	0.6	0.9
STRATEGY 2	0.8	0.7	0.0	0.9	0.9
STRATEGY 3	0.0	0.9	0.8	0.0	0.8
STRATEGY 4	0.6	0.6	0.8	0.0	0.9
TOTAL	2	3	2.5	1.5	3.5

402

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
STRATEGY 1	0.8	0.6	0.95	0.75	0.35
STRATEGY 2	0.1	0.9	0.85	0.75	0.65
STRATEGY 3	0.7	0.85	0.95	0.45	0.15
STRATEGY 4	0.9	0.85	0.95	0.95	0.95
TOTAL	2.5	3	3.7	2.8	2.1

FIG. 4

500

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	2	3	2.5	1.5	3.5
ITEM 2	2.5	3	3.7	2.8	2.1
ITEM 3	2.8	3.8	3.1	2.1	2
ITEM 4	2.3	3.4	3.1	3.9	1.6
ITEM 5	3.8	2.1	1.0	2.5	2.3

502

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	1.5	2.66	0.784	6.60	0.857
ITEM 2	3.2	2.33	0.54	3.21	3.33
ITEM 3	2.14	1.05	0.645	3.3	2.50
ITEM 4	3.47	1.17	0.645	0.769	3.125
ITEM 5	2.368	4.76	6.0	3.6	4.34

504

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	3	8	2	10	3
ITEM 2	8	7	2	9	7
ITEM 3	6	4	2	7	5
ITEM 4	8	4	2	3	5
ITEM 5	9	10	6	9	10

FIG. 5

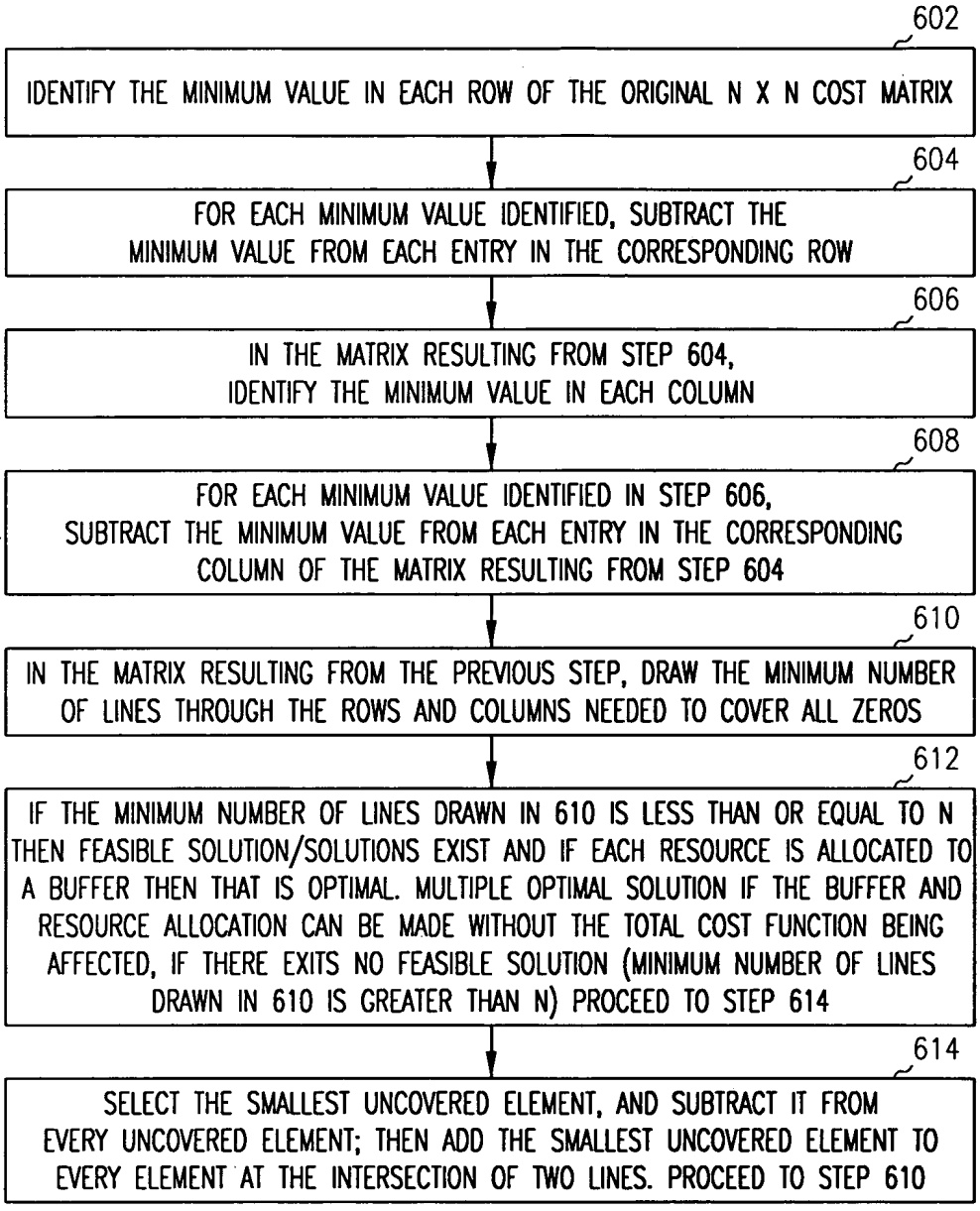
602
IDENTIFY THE MINIMUM VALUE IN EACH ROW OF THE ORIGINAL N X N COST MATRIX
604
FOR EACH MINIMUM VALUE IDENTIFIED, SUBTRACT THE MINIMUM VALUE FROM EACH ENTRY IN THE CORRESPONDING ROW
606
IN THE MATRIX RESULTING FROM STEP 604, IDENTIFY THE MINIMUM VALUE IN EACH COLUMN
608
FOR EACH MINIMUM VALUE IDENTIFIED IN STEP 606, SUBTRACT THE MINIMUM VALUE FROM EACH ENTRY IN THE CORRESPONDING COLUMN OF THE MATRIX RESULTING FROM STEP 604
610
IN THE MATRIX RESULTING FROM THE PREVIOUS STEP, DRAW THE MINIMUM NUMBER OF LINES THROUGH THE ROWS AND COLUMNS NEEDED TO COVER ALL ZEROS
612
IF THE MINIMUM NUMBER OF LINES DRAWN IN 610 IS LESS THAN OR EQUAL TO N THEN FEASIBLE SOLUTION/SOLUTIONS EXIST AND IF EACH RESOURCE IS ALLOCATED TO A BUFFER THEN THAT IS OPTIMAL. MULTIPLE OPTIMAL SOLUTION IF THE BUFFER AND RESOURCE ALLOCATION CAN BE MADE WITHOUT THE TOTAL COST FUNCTION BEING AFFECTED, IF THERE EXITS NO FEASIBLE SOLUTION (MINIMUM NUMBER OF LINES DRAWN IN 610 IS GREATER THAN N) PROCEED TO STEP 614
614
SELECT THE SMALLEST UNCOVERED ELEMENT, AND SUBTRACT IT FROM EVERY UNCOVERED ELEMENT; THEN ADD THE SMALLEST UNCOVERED ELEMENT TO EVERY ELEMENT AT THE INTERSECTION OF TWO LINES. PROCEED TO STEP 610

FIG. 6

702

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5	ROW MINIMUM
ITEM 1	3	8	2	10	3	2
ITEM 2	8	7	2	9	7	2
ITEM 3	6	4	2	7	5	2
ITEM 4	8	4	2	3	5	2
ITEM 5	9	10	6	9	10	6

704

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	3-2=1	8-2=6	2-2=0	10-2=8	3-2=1
ITEM 2	6	5	0	7	5
ITEM 3	4	2	0	5	3
ITEM 4	6	2	0	1	3
ITEM 5	3	4	0	3	4
COLUMN MINIMUM	1	2	0	1	1

706

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	0	4	0	7	0
ITEM 2	5	3	0	6	4
ITEM 3	3	0	0	4	2
ITEM 4	5	0	0	0	2
ITEM 5	2	2	0	2	3

FIG. 7A

708

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	0	4	0+2=2	7	0
ITEM 2	5-2=3	3-2=1	0	6-2=4	4-2=2
ITEM 3	3	0	0+2=2	4	2
ITEM 4	5	0	0=2=2	0	2
ITEM 5	2-2=0	2-2=0	0	2-2=0	3-2=1

710

	BUFFER 1	BUFFER 2	BUFFER 3	BUFFER 4	BUFFER 5
ITEM 1	0	4	2	7	0
ITEM 2	3	1	0	4	2
ITEM 3	3	0	2	4	2
ITEM 4	5	0	2	0	2
ITEM 5	0	0	0	0	1

FIG. 7B

ITEMS	BUFFERS	COST (UNITS)
ITEM 1	BUFFER 5	3
ITEM 2	BUFFER 3	2
ITEM 3	BUFFER 2	4
ITEM 4	BUFFER 4	3
ITEM 5	BUFFER 1	9
TOTAL COST INVOLVED		21

FIG. 8